Universitatea Naţională de Ştiinţă şi Tehnologie Politehnica Bucureşti
Facultatea de Electronică, Telecomunicaţii şi
Tehnologia Informaţiei

COURSE DESCRIPTION

1. Program identification information

1.1 Higher education institution	**National University of Science and Technology Politehnica Bucharest**
1.2 Faculty	**Electronics, Telecommunications and Information Technology**
1.3 Department	**Electronic Technology and Reliability**
1.4 Domain of studies	Electronic Engineering, Telecommunications and Information Technology
1.5 Cycle of studies	Masters
1.6 Programme of studies	Quality and Safety Engineering in Electronics and Telecommunications

2. Date despre disciplină

2.1 Course name (ro) (en)				Standardizare şi legislaţie în calitate şi siguranţă în funcţionare Standardization and legislation in quality and dependability			
2.2 Course Lecturer				Dr. mat. Luminiţa COPACI			
2.3 Instructor for practical activities							
2.4 Year of studies	1	2.5 Semester	I	2.6. Evaluation type	V	2.7 Course regime	Ob
2.8 Course type		S	2.9 Course code	4		2.10 Tipul de notare	Nota

3. Total estimated time (hours per semester for academic activities)

3.1 Number of hours per week	1	Out of which: 3.2 course	1.00	3.3 seminary/laboratory	0
3.4 Total hours in the curricula	14.00	Out of which: 3.5 course	14	3.6 seminary/laboratory	0
Distribution of time:					hours
Study according to the manual, course support, bibliography and hand notes Supplemental documentation (library, electronic access resources, in the field, etc) Preparation for practical activities, homework, essays, portfolios, etc.					34
Tutoring					0
Examinations					2
Other activities (if any):					0

3.7 Total hours of individual study	36.00
3.8 Total hours per semester	50
3.9 Number of ECTS credit points	2

4. Prerequisites (if applicable) (where applicable)

4.1 Curriculum	Not applicable.

4.2 Results of learning	Not applicable.

5. Necessary conditions for the optimal development of teaching activities (where applicable)

5.1 Course	The course will take place in a room equipped with a video projector.
5.2 Seminary/ Laboratory/Project	Not applicable.

6. General objective *(Reffering to the teachers' intentions for students and to what the students will be thought during the course. It offers an idea on the position of course in the scientific domain, as well as the role it has for the study programme. The course topics, the justification of including the course in the currcula of the study programme, etc. will be described in a general manner)*

Presentation of fundamental concepts and standards, knowledge of the legislation in force regarding quality and safety in operation.

Developing students' ability to apply theoretical, technical and legal knowledge regarding standardization in the field of quality and dependability.

7. Competences *(Proven capacity to use knowledge, aptitudes and personal, social and/or methodological abilities in work or study situations and for personal and proffesional growth. They refflect the empolyers requirements.)*

Specific Competences	Demonstrate basic/advanced knowledge of legislation and standardization in the field of quality and dependability. Correlate and apply knowledge. Apply standardized methods and tools, specific to the field, to carry out the evaluation and diagnosis process of a situation, depending on the identified/reported problems, and identify solutions. Argue and analyze coherently and correctly the context of application of basic knowledge in legislation, using key concepts of the discipline and specific methodology. Oral and written communication in Romanian: use the scientific vocabulary specific to the legislation and standards in force, in order to communicate effectively, in writing and orally.
Transversal (General) Competences	Work in a team and communicates effectively, coordinating efforts with others to solve problem situations of medium complexity. Autonomy and critical thinking: the ability to think in scientific terms, search and analyze data independently, and draw and present conclusions / identify solutions. Ability to analyze and synthesize: presents the acquired knowledge in a synthetic way, as a result of a process of systematic analysis. Respect the principles of academic ethics: correctly cite the bibliographic sources used in the documentation activity. Puts elements of emotional intelligence into practice in the appropriate social-emotional management of real-life/academic/professional situations, demonstrating self-control and objectivity in decision-making or stressful situations.

8. Learning outcomes *(Synthetic descriptions for what a student will be capable of doing or showing at the completion of a course. The learning outcomes reflect the student's acomplishments and to a lesser extent the teachers' intentions. The learning outcomes inform the students of what is expected from them with respect to performance and to obtain the desired grades and ECTS points. They are defined in concise terms, using verbs similar to the examples below and indicate what will be required for evaluation. The learning outcomes will be formulated so that the correlation with the competences defined in section 7 is highlighted.)*

Knowledge	*The result of knowledge aquisition through learning. The knowledge represents the totality of facts, priciples, theories and practices for a given work or study field. They can be theoretical and/or factual.* • Listing the most important standards and laws specific to the field of quality and safety in operation. • Defining notions specific to the field of quality/reliability/security. • Describing/classifying notions/processes/phenomena/structures. • Highlighting consequences and relationships.
Skills	*The capacity to apply the knowledge and use the know-how for completing tasks and solving problems. The skills are described as being cognitive (requiring the use of logical, intuitive and creative thinking) or practical (implying manual dexterity and the use of methods, materials, tools and intrumentation).* • Selecting and grouping relevant information in a given context. • Reasonably using specific principles in order to use general standards. • Working productively in a team. • Elaborating a scientific text. • Experimentally verifying identified solutions. • Adequately interpreting causal relationships. • Analyzing and comparing laws, regulations, standards. • Identifying solutions and developing solution/project plans. • Arguing the identified solutions/solutions.
Responsability and autonomy	*The student's capacity to autonomously and responsably apply their knowledge and skills.* • Selecting appropriate bibliographic sources and analyzing them. • Respecting the principles of academic ethics, correctly citing the bibliographic sources used. • Demonstrating responsiveness to new learning contexts. • Demonstrating collaboration with other colleagues and teaching staff in carrying out teaching activities • Demonstrating autonomy in organizing the learning situation/context or the problem situation to be solved • Realizing the value of his contribution in the field of engineering to the identification of viable/sustainable solutions to solve problems in social and economic life (social responsibility). • Applying principles of professional ethics/deontology in the analysis of the technological impact of the proposed solutions in the specialized field on the environment. • Analyzing and capitalizing on business/entrepreneurial development opportunities in the specialized field.

9. Teaching techniques *(Student centric techniques will be considered. The means for students to participate in defining their own study path, the identification of eventual fallbacks and the remedial measures that will be adopted in those cases will be described.)*

Starting from the analysis of students' learning characteristics and their specific needs, the teaching process will explore both expository (lecture, exposition) and conversational-interactive teaching methods, based on discovery learning models facilitated by direct and indirect exploration of reality (experiment, demonstration, modelling), but also on action-based methods, such as exercise, practical activities and problem solving.

In the teaching activity, lectures will be used, based on Power Point presentations or different videos that will be made available to the students. Each course will start with a recap of the chapters already covered, with an emphasis on the concepts covered in the last course.

Presentations use images and diagrams so that the information presented is easy to understand and assimilate.

This discipline covers information and practical activities designed to support students in their learning efforts and the development of optimal collaborative and communicative relationships in a climate conducive to discovery learning.

The practice of active listening and assertive communication skills, as well as feedback construction mechanisms, will be considered as ways of regulating behavior in various situations and adapting the pedagogical approach to the students' learning needs.

Teamwork skills will be practiced to solve different learning tasks.

10. Contents

COURSE		
Chapter	**Content**	**No. hours**
1	1. Standardization and legislation. General considerations. 1.1. Legislation. Concept, categories of laws, regulations. 1.2. Administrative provisions 1.3. General notions about standards and standardization 1.4. Standards, rules, guidelines, specifications	2
2	2. Standardization: managerial tool for building quality at the organization level 2.1. The relationship between quality and standardization 2.2. Standardization - part of the company's strategy. Objectives, fields of application.	4
3	3. Reference standards for the control and assurance of product quality and reliability 3.1. MIL STD series standards. Types, methods of application. 3.2. Statistical control by attributes. MIL-STD-105.	4
4	4. Reference standards for quality and safety management certification 4.1. Standards for system certification 4.2. The ISO 9001 family of standards 4.3. Environmental management (ISO 14001)	4
	Total:	14

Bibliography:
1. "Standardizarea" journal collection, MT Press.
2. "Sisteme de management al calităţii în întreprinderile mici şi mijlocii. Ghid pentru adoptarea standardului" ISO 9001:2000.
3. "Calitatea – acces la succes" journal collection, ISSN 1582-2559.
4. "Asigurarea Calităţii" journal collection – Quality Assurance, ISSN 1224-5410.
5. Moodle UPB SLQD course support - https://curs.upb.ro.

Bibliography:

11. Evaluation

Activity type	11.1 Evaluation criteria	11.2 Evaluation methods	11.3 Percentage of final grade
11.4 Course	- knowledge of fundamental theoretical notions	Final assessment - written exam	40%
	- differential analysis of theoretical techniques and methods	Realisation and presentation of homework	40%
	- knowledge of how to apply the theory in the study of specific cases	Assessment during the semester	20%
11.5 Seminary/laboratory/project			
11.6 Passing conditions			
• Obtaining 50% of the total score. • Obtaining 50% of the score related to the activity during the semester.			

12. Corroborate the content of the course with the expectations of representatives of employers and representative professional associations in the field of the program, as well as with the current state of knowledge in the scientific field approached and practices in higher education institutions in the European Higher Education Area (EHEA)

• Through the activities carried out, students develop skills to offer solutions to some problems and to propose ideas for improving the state of the art in the field of standardization and legislation in the field of quality and dependability.

• Knowledge / aspects / phenomena described in specialized literature / own published / presented research were taken into account in the development of the content of the discipline.

• Through project activities, the development of the graduate's skills to manage practical situations that they may face in real life is considered in order to increase his contribution to the improvement of the socio-economic environment.

Date	Course lecturer	Instructor(s) for practical activities
25.09.2025	Dr. mat. Luminița COPACI	

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Date of department approval	Head of department
	Conf. dr. ing. Marian VLĂDESCU
Date of approval in the Faculty Council	Dean
26.09.2025	Prof. Dr. Mihnea Udrea